ONONDAGA LAKE

SUMMARY OF WINTER WATERFOWL SURVEY

2007 – 2008

Prepared by:

Anne L. Secord

U.S. Fish and Wildlife Service

New York Field Office

3817 Luker Road

Cortland, New York 13045

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Table of Contents

Page Number

Introduction 1

Methods 1

Results 1

Acknowledgements 2

List of Tables

Table 1. Most Abundant Species at Onondaga Lake as Surveyed November 2007 through March 2008

List of Figures

Figure 1. Onondaga Lake Waterfowl Survey Locations, 2007-2008, USFWS
Figure 2. Onondaga Lake Waterfowl Survey – 14 Most Abundant Species Recorded Nov 2007-Mar 2008
Figure 3. Total Number of Birds and Ambient mean Temperature at Onondaga Lake Nov 2007-Mar 2008
Figure 4. Average Number of Birds seen per Site (n=18 survey periods)
Figure 5. Number Birds Seen 2008 Christmas Bird Count Onondaga Lake

List of Appendices

Appendix A. Onondaga Lake Waterfowl Survey Standard Operating Procedure
Appendix B. Data from Onondaga Lake 2007-2008 Winter Waterfowl Survey

Introduction

The U.S. Fish and Wildlife Service conducted a winter waterfowl survey at Onondaga Lake during the winter of 2007-2008. The primary objective of the survey was to increase our understanding of waterfowl use at Onondaga Lake during the non-breeding season from November through March. We focused on waterfowl as these are the birds that forage most significantly within the Onondaga Lake ecosystem during the winter months. Other birds associated with Onondaga Lake (e.g. insectivorous passerines and fish-eating birds such as osprey) migrate to warmer climates during the winter. This report serves to provide data from the 2007-2008 survey and a brief evaluation of that data.

Methods

Surveys were conducted from November 14, 2007, through March 27, 2008. Approximately one day per week, a team of two people conducted a survey at ten locations around Onondaga Lake (Figure 1). These survey locations were selected to allow for the most complete survey coverage of the Lake from easily accessible points along the shoreline (Appendix A – Standard Operating Procedure). A visual survey using binoculars and a spotting scope (20x eyepiece) was performed for approximately 15-30 minutes at each of the ten sites on each survey date. All birds seen on the water surface or the adjoining shoreline up to 50 meters from the water's edge were counted. The survey focused on identifying and recording primarily ducks, geese, and swans, although waterbirds and other birds of interest were also noted. Efforts were made to avoid double-counting of birds. Surveys were not conducted or were suspended if weather conditions impaired visibility.

Results

All data are presented in Appendix B. The ten most abundant species recorded in general order of abundance were common merganser (*Mergus merganser*), mallard (*Anas platyrhynchos*), ring-billed gull (*Larus delawarensis*), common goldeneye (*Bucephala clangula*), herring gull (*Larus argentatus*), Canada goose (*Branta canadensis*), greater black-backed gull (*Larus marinus*), lesser scaup (*Aythya affinis*), American black duck (*Anas rubripes*), and bufflehead (*Bucephala albeola*) (Table 1, Figure 2). The survey on March 21, 2008, was suspended due to bad weather and results are not used in any data summaries. The greatest number of birds was counted on January 31, 2008, followed by January 24, 2008 (Figures 2 and 3). The lowest daily numbers of birds were counted in November and February. Birds that may be characterized as winter residents based on these data include common merganser, mallard, common goldeneye, Canada goose, and the gull species. Ambient mean temperatures are presented in Appendix C, as well as depicted on Figure 3. Temperatures generally declined from the initial survey period through middle to late February, after which the mean temperature began to increase. The low numbers of birds counted in February may reflect iced over conditions noted on the field data sheets at most survey sites other than #6 (Metro) and #9 (Ninemile Creek).

Table 1. Most Abundant Species at Onondaga Lake as Surveyed November 2007 through March 2008 (based on average # per survey period)	
Species	Average number of birds counted (averaged over 18 survey periods)
Common merganser	989
Mallard	269
Ring-billed gull	202
Common goldeneye	173
Herring gull	106
Canada goose	103
Greater black-backed gull	101
Lesser scaup	38
American black duck	20
Bufflehead	18

We compared our data with data from the 2008 Christmas bird count conducted Onondaga Lake-wide on December 20, 2008 (data provided by Bill Purcell; summarized in Figure 5). The common merganser was also the most abundant species noted on that date followed by Canada goose, mallard, ring-billed gull, herring gull, and common goldeneye. Our data were consistent with these Christmas bird count data.

Acknowledgements

Funding for this project was provided by Honeywell, Inc. We acknowledge Ken Karwowski for managing the project and field surveyors Gian Dodici, Amy Roe, and Eric Rozowski.

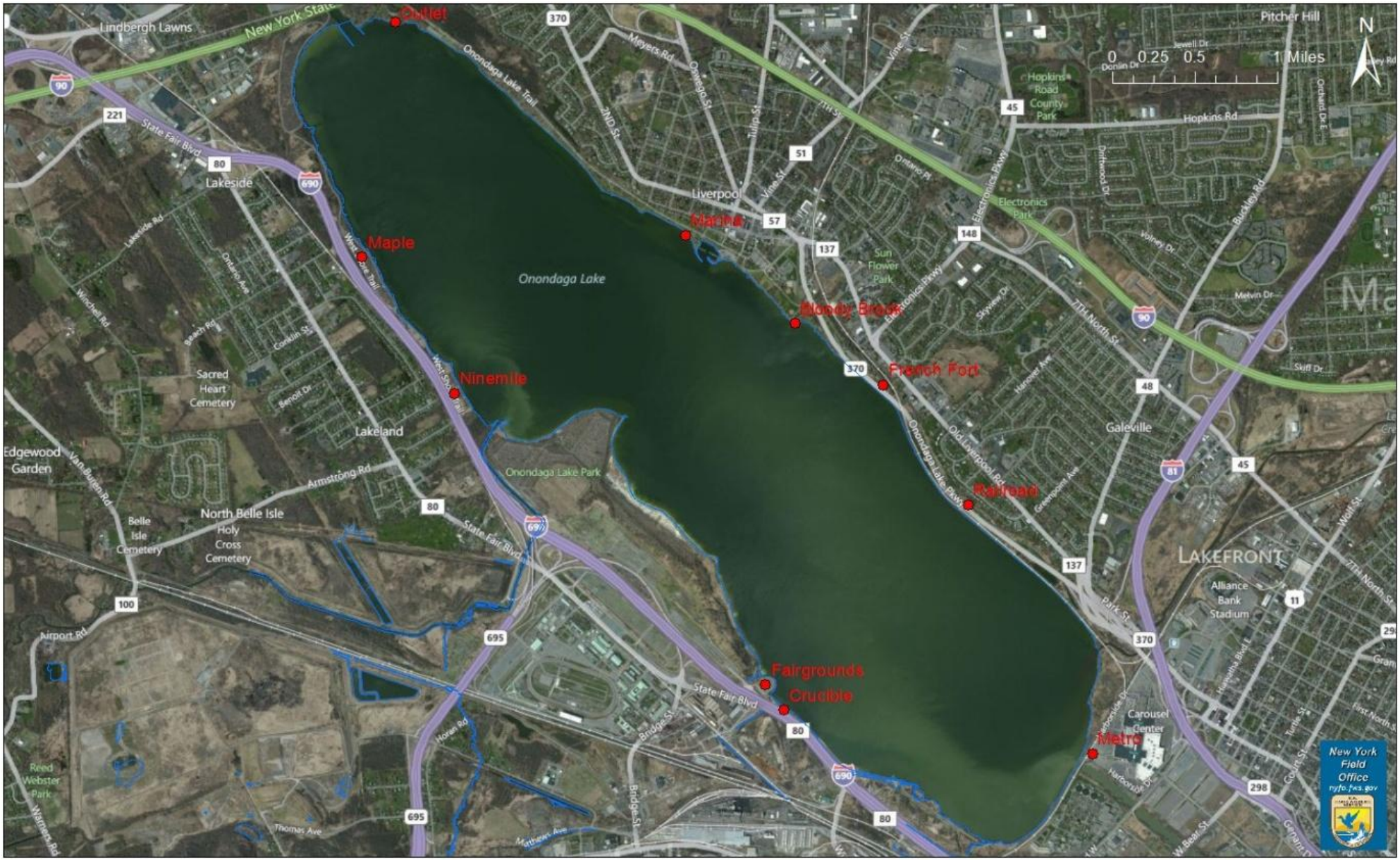


Figure 1. Onondaga Lake Waterfowl Survey Locations, 2007-08, USFWS

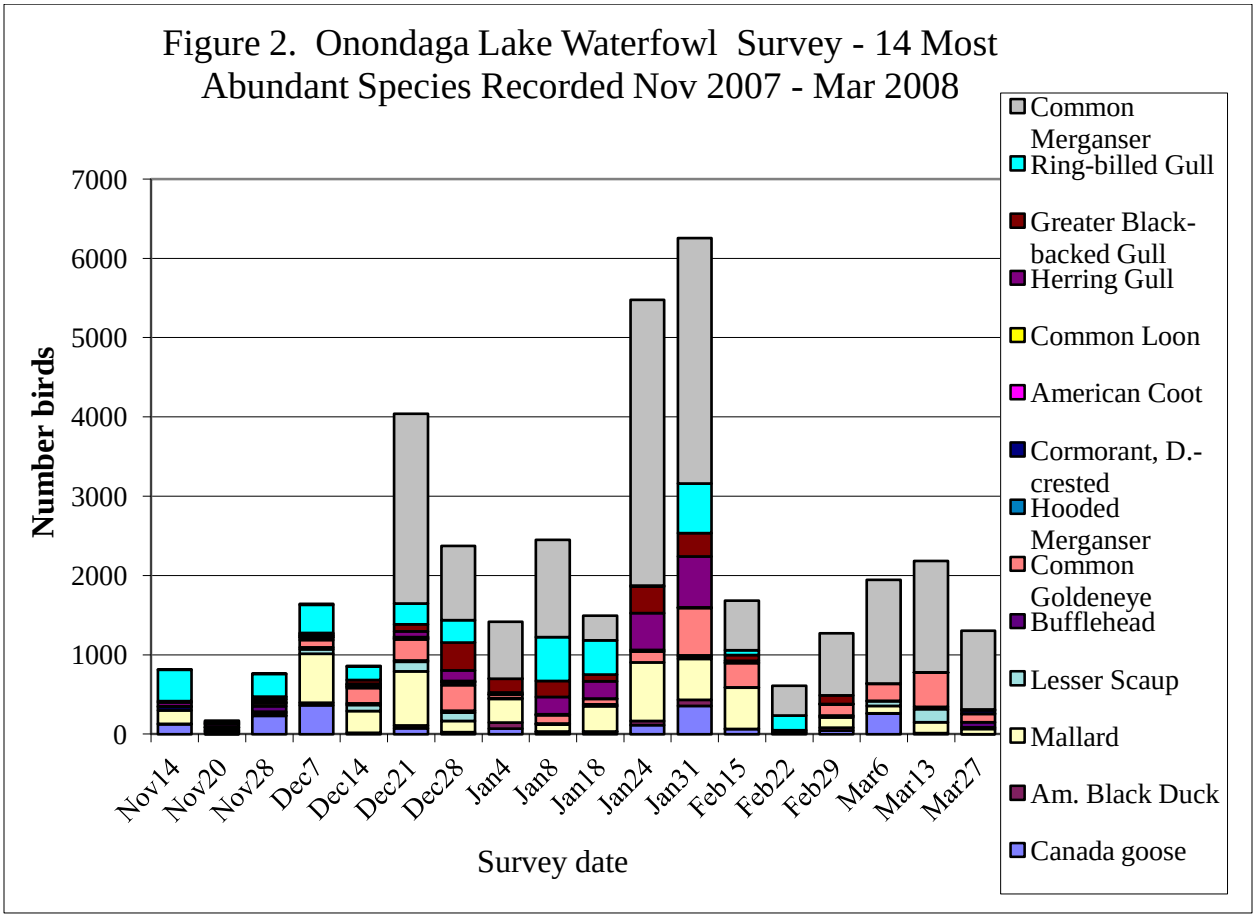
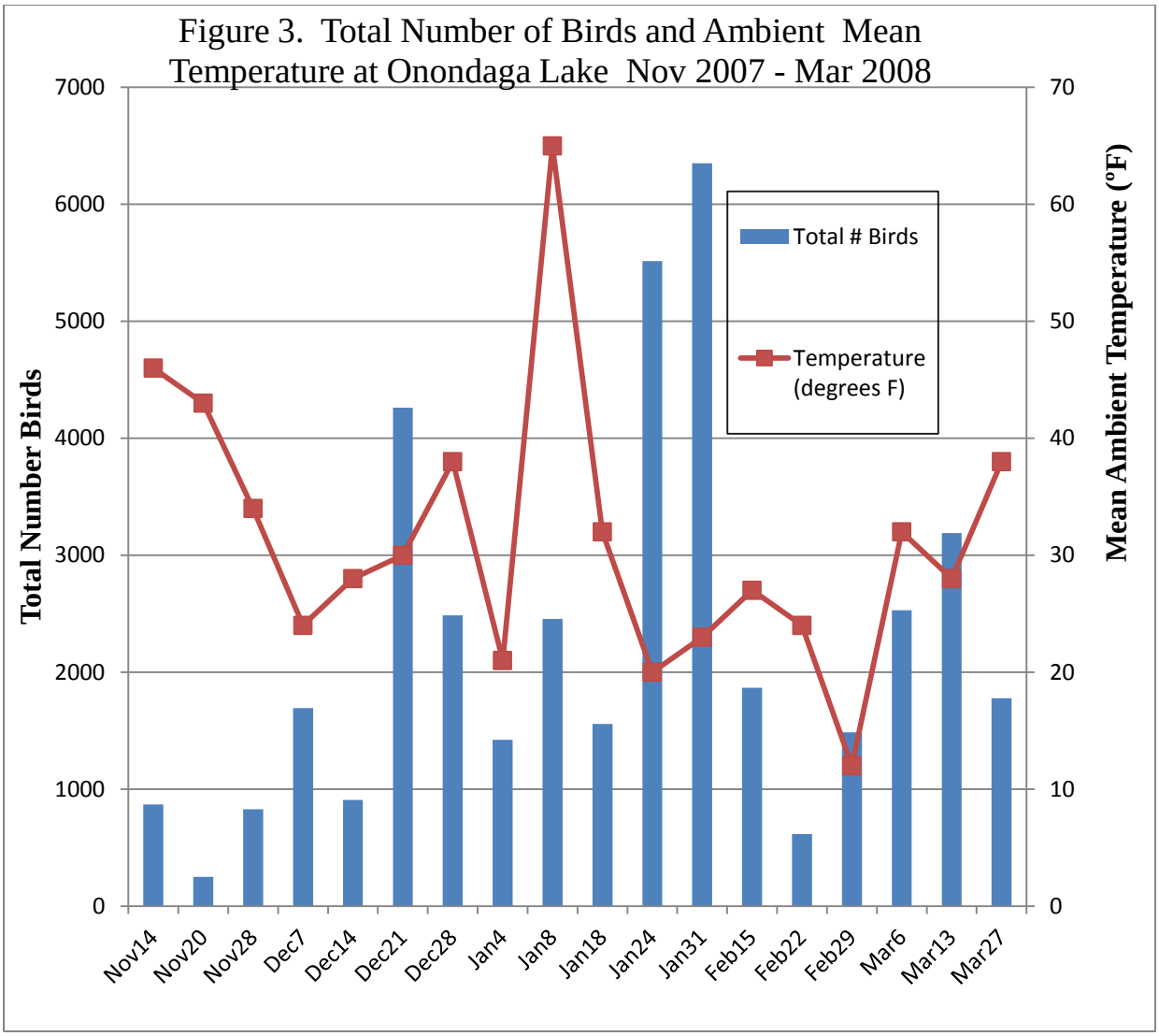


Figure 2. Onondaga Lake Waterfowl Survey - 14 Most Abundant Species Recorded Nov 2007 - Mar 2008
Number birds
7000
6000
5000
4000
3000
2000
1000
0
Nov14
Nov20
Nov28
Dec7
Dec14
Dec21
Dec28
Jan4
Jan8
Jan18
Jan24
Jan31
Feb15
Feb22
Feb29
Mar6
Mar13
Mar27
Survey date
Common Merganser
Ring-billed Gull
Greater Black-backed Gull
Herring Gull
Common Loon
American Coot
Cormorant, D.-crested
Hooded Merganser
Common Goldeneye
Bufflehead
Lesser Scaup
Mallard
Am. Black Duck
Canada goose

Figure 3. Total Number of Birds and Ambient Mean Temperature at Onondaga Lake Nov 2007 - Mar 2008



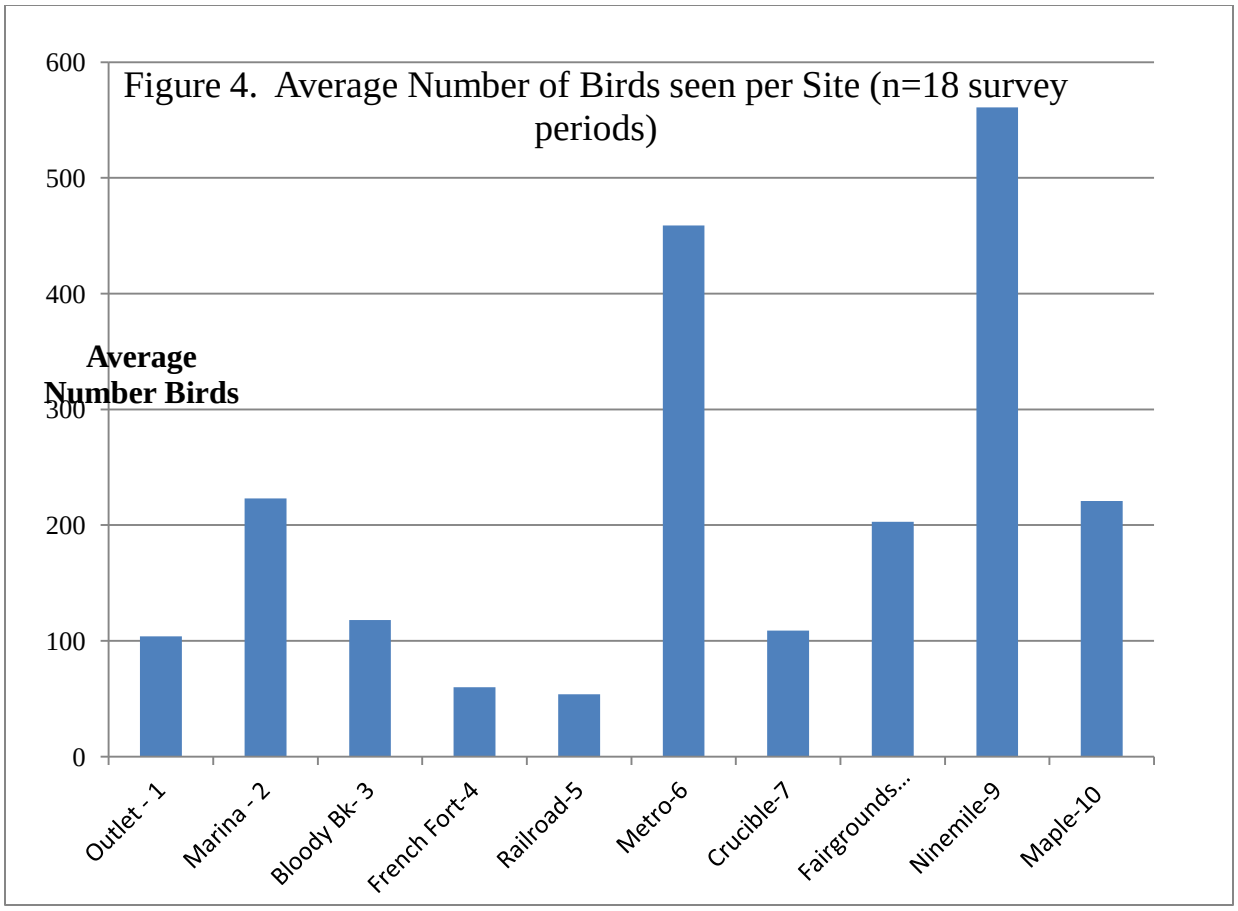
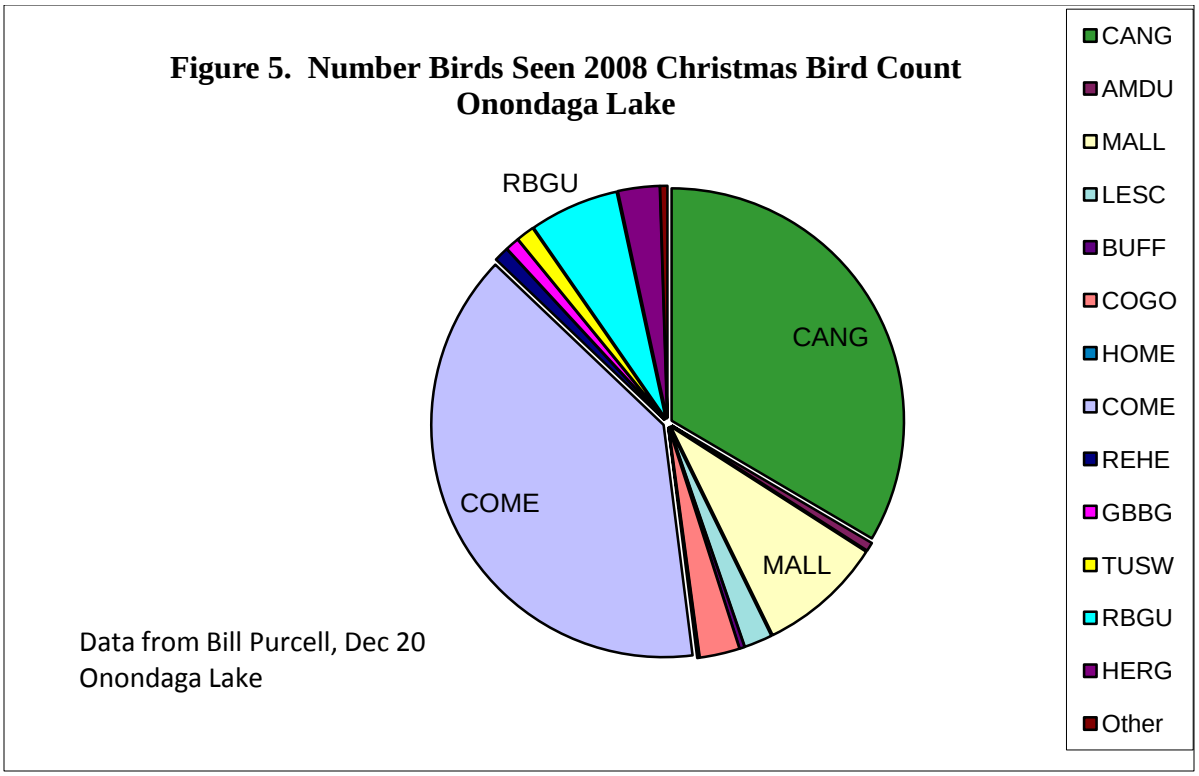


Figure 4. Average Number of Birds seen per Site (n=18 survey periods)
Average Number Birds
600
500
400
300
200
100
0
Outlet - 1
Marina - 2
Bloody Bk- 3
French Fort-4
Railroad-5
Metro-6
Crucible-7
Fairgrounds...
Ninemile-9
Maple-10

Figure 5. Number Birds Seen 2008 Christmas Bird Count Onondaga Lake



Data from Bill Purcell, Dec 20
Onondaga Lake

Key to Avian Abbreviations for Figure 5:

CANG	Canada goose
AMDU	American black duck
MALL	Mallard
LESC	Lesser scaup
BUFF	Bufflehead
COGO	Common goldeneye
HOME	Hooded merganser
COME	Common merganser
REHE	Redhead
GBBG	Greater black-backed gull
TUSW	Tundra swan
RBGU	Ring-billed gull
HERG	Herring gull
Other	All other species

Appendix A. Onondaga Lake Waterfowl Survey Standard Operating Procedure

Sample Locations: Ten survey sites (Figure 1) were chosen to allow for the most complete coverage of Onondaga Lake (Lake) from easily accessible public access points to the shoreline. Count waterfowl seen at each site 1-10 starting at any convenient location and proceeding along the shoreline until all sites are surveyed. If, during the course of the survey, you come across a sample location that may be easier to access or provide better coverage of a particular area, please record the details as a notation on the survey sheets.

Counting: Counting should be done from a stationary point from which the entire area (i.e. cove or embayment) to be surveyed can be seen with binoculars and a spotting scope (20x eyepiece unless otherwise noted). Every bird seen on the water or on the adjoining shoreline up to 50 m from the water should be counted at each location. There is no set time limit for the census. Take only as much time as needed to accurately count and record each bird seen. Most locations should take between 15-30 minutes to survey.

Which Birds to Count: Count individuals of all waterfowl species seen during each census. Waterfowl species are defined as ducks, geese, and swans. When possible, note whether individuals are male, female, or juvenile (first year birds). Large flocks of greater than 100 birds can be estimated by counting in groups of ten, 20, or 100. Report only those birds actually seen during the census. Be careful not to count any individuals known or strongly suspected to have been counted at a previous location. Also, note the numbers of other waterbirds such as gulls and cormorants. Large flocks of gulls can be roughly estimated to save time. Any species unusual in the area, whether it appears on the form or not, should be supported by including some details of the observation.

Disturbance: Note on the field data sheets whether there was any disturbance present at the time of census that may have influenced waterfowl at the location. Disturbance can include human activity (hunting, boating, people or pets walking along the shore) and natural phenomena such as the presence of predators (e.g., a hawk circling nearby).

Acceptable Weather: Censuses are to be conducted only under satisfactory weather conditions: good visibility, little or no precipitation, light winds. General weather conditions should be noted on the data sheets – temperature; wind direction (recorded using the eight inter-cardinal points (N,NE,E,SE,S,SW,W, NW); cloud cover (estimate the percentage of sky covered with clouds [0 – 100%]; precipitation (three scenarios – fog, rain or snow). Indicate wave state as to whether the Lake surface is calm, choppy, pounding waves. If there is ice cover, estimate the extent of ice coverage: none, partial, or total and indicate the approximate location and coverage on the survey map.

Record Keeping: Data sheets should be completely filled out at the time of the survey. Please return completed data sheets to the New York Field Office. Following completion of the survey, we will enter data into an EXCEL database. Fill out one data sheet only per survey location,

even if that survey location includes several survey spots. Record the number of birds seen using Arabic numerals (i.e., 1,2,3 …) on the final data sheets. If possible, record the gender of waterfowl observed and any juveniles (e.g., males in pre-adult plumage). Remember to record the start and end time for each survey location.

Appendix B. Data from Onondaga Lake 2007-2008 Winter Waterfowl Survey

APPENDIX B-Page 1 of 4	SURVEY DATE					
SPECIES	14-Nov-07	20-Nov-07	28-Nov-07	7-Dec-07	14-Dec-07	21-Dec-07
Bald eagle	0	0	0	0	0	1
Canada goose	129	7	232	364	0	76
Brant	0	0	0	0	0	0
Tundra swan	0	0	0	0	0	8
Wood duck	0	0	0	1	0	0
Gadwall	0	0	0	5	0	2
American widgeon	0	0	1	0	0	0
Am. black duck	1	0	2	34	18	36
Mallard	172	27	36	616	274	680
Mallard X Blk duck	0	0	0	1	0	0
Canvasback	0	0	0	0	0	0
Redhead	0	0	0	1	10	63
Ring-necked duck	0	0	1	8	0	32
Greater scaup	0	0	0	0	0	0
Lesser scaup	0	0	15	59	76	120
Scaup sp.	1	4	0	0	0	0
Long-tailed duck	0	1	0	3	3	0
Bufflehead	0	15	70	21	20	19
Common goldeneye	0	34	36	95	197	266
Hooded merganser	0	3	8	31	16	9
Common merganser	4	0	2	13	8	2394
Red-breasted merganser	0	0	3	23	6	112
Merganser sp.	0	56	0	0	1	0
Ruddy duck	0	0	0	0	0	0
Pied-billed grebe	0	5	0	3	0	0
Horned grebe	0	0	0	4	2	0
Red-necked grebe	0	0	0	0	0	0
Eared grebe	0	0	0	0	0	0
Double-crested cormorant	41	4	6	2	3	2
American coot	0	36	33	19	20	15
Common loon	8	5	6	6	5	2
Bonaparte's gull	0	7	4	0	0	0
Ring-billed gull	396	18	288	355	168	260
Herring gull	52	14	24	19	6	73
Greater black-backed gull	13	9	6	10	49	89
Common crow	0	0	2	0	24	0
Fish crow	0	3	7	0	0	0
Belted kingfisher	1	1	0	0	0	0
Short-eared owl	0	0	0	0	1	0
Unidentified duck	50	0	47	0	0	0
White-winged scoter	0	0	0	0	0	2
Peregrine falcon	0	0	0	0	0	0
Pintail	0	0	0	0	0	0

APPENDIX B-Page 2 of 4	SURVEY DATE					
SPECIES	28-Dec-07	4-Jan-08	8-Jan-08	18-Jan-08	24-Jan-08	31-Jan-08
Bald eagle	0	1	0	0	4	3
Canada goose	10	71	32	34	114	357
Brant	0	0	0	0	0	0
Tundra swan	0	0	0	0	2	86
Wood duck	0	0	0	0	0	0
Gadwall	0	0	2	0	0	0
American widgeon	0	0	0	0	0	0
Am. black duck	18	76	1	2	54	75
Mallard	138	299	92	315	737	519
Mallard X Blk duck	2	0	0	0	0	0
Canvasback	0	0	0	0	0	0
Redhead	71	1	0	0	0	6
Ring-necked duck	26	0	0	17	0	0
Greater scaup	0	0	0	0	0	0
Lesser scaup	107	0	8	12	0	27
Scaup sp.	0	0	0	0	8	0
Long-tailed duck	4	0	0	0	0	0
Bufflehead	25	7	4	13	0	18
Common goldeneye	321	47	105	70	140	597
Hooded merganser	38	2	5	0	20	4
Common merganser	939	719	1226	309	3602	3095
Red-breasted merganser	0	0	0	0	0	0
Merganser sp.	0	0	0	0	0	0
Ruddy duck	0	0	2	0	0	0
Pied-billed grebe	0	0	0	0	0	0
Horned grebe	0	0	0	0	0	0
Red-necked grebe	0	0	0	0	0	0
Eared grebe	0	0	0	0	0	0
Double-crested cormorant	3	0	0	0	0	0
American coot	8	3	6	3	0	3
Common loon	3	0	0	0	0	0
Bonaparte's gull	0	0	0	0	0	0
Ring-billed gull	283	1	552	432	12	626
Herring gull	133	21	219	220	461	642
Greater black-backed gull	350	174	200	85	337	293
Common crow	0	0	0	0	3	0
Fish crow	1	0	0	0	0	0
Belted kingfisher	3	0	0	0	0	0
Short-eared owl	0	0	0	0	0	0
Unidentified duck	0	0	0	46	20	0
White-winged scoter	2	0	0	0	0	0
Peregrine falcon	0	0	0	0	1	0
Pintail	0	0	0	0	0	0

APPENDIX B-Page 3 of 4	SURVEY DATE					
SPECIES	15-Feb-08	22-Feb-08	29-Feb-08	6-Mar-08	13-Mar-08	21-Mar-08*
Bald eagle	2	3	5	2	5	0
Canada goose	67	25	48	260	14	0
Brant	0	0	0	0	0	0
Tundra swan	12	0	0	0	0	0
Wood duck	0	0	0	0	0	0
Gadwall	0	0	0	0	16	0
American widgeon	1	0	0	112	73	0
Am. black duck	1	0	35	5	0	0
Mallard	518	0	128	92	138	0
Mallard X Blk duck	0	0	0	0	0	0
Canvasback	0	0	15	34	38	0
Redhead	161	0	191	435	253	0
Ring-necked duck	3	0	0	0	241	4
Greater scaup	0	0	0	0	25	0
Lesser scaup	0	0	15	59	165	0
Scaup sp.	0	0	0	0	0	0
Long-tailed duck	0	0	0	0	0	0
Bufflehead	4	0	11	6	26	0
Common goldeneye	308	0	142	213	432	1
Hooded merganser	0	0	2	0	2	0
Common merganser	628	375	785	1305	1404	53
Red-breasted merganser	1	0	0	0	0	0
Merganser sp.	0	0	0	0	0	0
Ruddy duck	0	0	0	0	0	0
Pied-billed grebe	0	0	0	0	0	0
Horned grebe	0	0	0	0	0	0
Red-necked grebe	0	0	0	0	0	0
Eared grebe	0	0	0	0	0	0
Double-crested cormorant	0	0	0	5	1	3
American coot	3	0	1	1	4	0
Common loon	0	0	0	0	0	0
Bonaparte's gull	0	0	0	0	0	0
Ring-billed gull	60	188	0	0	0	0
Herring gull	24	0	0	0	0	0
Greater black-backed gull	73	25	107	0	0	0
Common crow	0	0	0	0	0	0
Fish crow	0	0	0	0	0	0
Belted kingfisher	0	0	0	0	0	0
Short-eared owl	0	0	0	0	0	0
Unidentified duck	0	0	0	0	353	0
White-winged scoter	0	0	0	0	0	0
Peregrine falcon	0	0	0	0	0	0
Pintail	0	0	0	8	0	0

APPENDIX B-Page 4 of 4	SURVEY DATE
SPECIES	27-Mar-08
Bald eagle	0
Canada goose	8
Brant	0
Tundra swan	0
Wood duck	0
Gadwall	5
American widgeon	22
Am. black duck	0
Mallard	60
Mallard X Blk duck	0
Canvasback	0
Redhead	174
Ring-necked duck	269
Greater scaup	0
Lesser scaup	17
Scaup sp.	0
Long-tailed duck	0
Bufflehead	68
Common goldeneye	104
Hooded merganser	2
Common merganser	994
Red-breasted merganser	0
Merganser sp.	0
Ruddy duck	0
Pied-billed grebe	1
Horned grebe	2
Red-necked grebe	0
Eared grebe	0
Double-crested cormorant	41
American coot	11
Common loon	0
Bonaparte's gull	0
Ring-billed gull	0
Herring gull	0
Greater black-backed gull	0
Common crow	0
Fish crow	0
Belted kingfisher	0
Short-eared owl	0
Unidentified duck	0
White-winged scoter	0
Peregrine falcon	0
Pintail	0

Appendix C. Syracuse Minimum, Maximum, and Mean Temperature on Survey Dates (data from www.wunderground.com/history/airport/KSYR)			
Date	Temperature (degrees F)		
	Minimum	Maximum	Mean
14-Nov-07	30	61	46
20-Nov-07	36	49	43
28-Nov-07	28	40	34
07-Dec-07	15	33	24
14-Dec-07	18	37	28
21-Dec-07	22	37	30
28-Dec-07	34	42	38
04-Jan-08	12	29	21
08-Jan-08	59	70	65
18-Jan-08	24	39	32
24-Jan-08	15	24	20
31-Jan-08	17	28	23
15-Feb-08	17	36	27
22-Feb-08	18	29	24
29-Feb-08	-4	28	12
6-Mar-08	22	42	32
13-Mar-08	15	40	28
21-Mar-08	22	33	28
27-Mar-08	28	48	38